



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, ILLINOIS 60604**

**DATE:** MAR 12 2016

**SUBJECT:** CLEAN AIR ACT INSPECTION REPORT  
Cottonwood Hills Recycling and Disposal Facility

**FROM:** Linda H. Rosen, Environmental Engineer  
AECAB (IL/IN)

**THRU:** Nathan Frank, Section Chief  
AECAB (IL/IN)

**TO:** File

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**BASIC INFORMATION**

**Facility Name:** Cottonwood Hills Recycling and Disposal Facility

**Facility Location:** 10400 Hillstown Road, Marissa, Illinois 62257

**Date of Inspection:** July 29, 2014

**Lead Inspector:** Linda H. Rosen, Environmental Engineer, EPA

**Other Attendees:**

1. Kevin Frate, Site Manager, Cottonwood
2. Bill Raynor, Site Manager, Cottonwood
3. Ernest (Denny) Dennison, Engineer, Waste Management
4. Mike (last name unknown), Waste Management
5. Ray Cullen, Environmental Engineer, EPA

**Purpose of Inspection:** Cottonwood Hills Recycling and Disposal Facility (Cottonwood) was inspected with respect to Clean Air Act (CAA) requirements. The facility has been the subject of a citizen complaint.

**Facility Type:** Cottonwood is a municipal solid waste landfill.

**Regulations Central to Inspection:** Cottonwood is subject to the New Source Performance Standards for Municipal Solid Waste Landfills, 40 C.F.R. Part 60, Subpart WWW and a Federally Enforceable State Operating Permit (FESOP).

**Arrival Time:** 7:25 a.m.

**Departure Time:** 12:45 p.m.

**Inspection Type:**

- ☒ Unannounced Inspection
- ☐ Announced Inspection

**OPENING CONFERENCE**

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The following information was obtained verbally from Kevin Frate, Bill Raynor and/or Ernest Dennison unless otherwise noted.

**Process Description and Interview:**

Mr. Raynor, who has been with Cottonwood for 5 years and with Waste Management for 30 years and Mr. Frate, who has been with Cottonwood since October 2013, explained that Cottonwood has 206 acres of permitted landfill but only 30 acres is currently filled with waste. The landfill has about 27 gas wells installed. In 2000, the landfill started to accept waste. The landfill accepts mostly municipal solid waste. However, it does receive some construction and demolition waste, about 200 tons per week, and the landfill is permitted to receive some special wastes such as industrial sludges and fly ash. The landfill receives about 5-20 tons of special waste per week.

In about 2005, the facility installed an open flare. The system has a gas blower but they did not know what type specifically. The flare has an auto start feature if it goes off. It also has an auto dialer. The site managers did not know the details of how it worked. The facility is currently building another five acre cell. The life of the landfill is projected to be 2054. The landfill has done Phase 1, Phase 2 and they are now on the NW part of Phase 3. Some of the landfill is closed and a little more of the landfill is closed or capped each year. When the garbage reaches a certain height it is capped.

Regarding the surface monitoring, the site managers said that they monitor beginning at about mid-slope and above. They do not monitor the surface of the landfill at the edge of the waste because they claim it is on the slope. They also have gas probes on the outside of the perimeter of the waste. These are monitored once per year for methane according to a State rule. They also have an ambient air quality monitor. In town, they recently started monitoring the H<sub>2</sub>S due to the complaints. They also monitor the interior wells for methane, oxygen, and nitrogen percentages once per month. A methane percentage of 48-52 percent is ideal.

The site managers said that they did not know how exceedances are marked and they did not know if there have been any exceedances. They only monitor the flat areas where there is no visible garbage. They do not monitor slopes but they said I would have to check with Ernest (Denny) Dennison because they were not sure. The perimeter is only measured through the gas probes.

They did not know how often the surface monitoring was done or how many points were done. They did not have a copy of the surface monitoring plan.

We looked at a map of the landfill. They started depositing waste in 2000 in the corner of the landfill and are working out. There is an area of the landfill that is not receiving garbage but is not closed yet. In this intermediate phase, where they are not accepting garbage but it hasn't been closed yet, they cover with one foot of dirt. When they cap an area, they deposit three feet of clay and three feet of top soil. Finally, the active areas are covered every night with six inches of dirt or a tarp which is a 100 x 100 convex blanket. The landfill is approved for this alternative daily cover.

The landfill has a leachate system. They have three sump stations. When they reach a certain level, the pumps are kicked on. This can happen several times per day. The leachate eventually goes to the city's WWTP.

At about 9:45 a.m., Ernest Dennison arrived and we went over some of the same topics that were discussed with Mr. Frate and Mr. Raynor. The facility has an ambient air monitor placed outside the waste area. There are subsurface probes placed at the outside the perimeter of the waste. They conduct surface monitoring four inches above the surface of the landfill when the wind is less than 5 miles per hour. They recently started quarterly H<sub>2</sub>S monitoring in town and outside the perimeter. This was done in response to the recent complaints which Mr. Dennison said are all from one family. They have a written H<sub>2</sub>S monitoring plan.

Regarding the surface monitoring, Mr. Dennison said they haven't had too many exceedances unless the clay cover cracks. He did not know the specific number, however. If there are no hits, the technician records the single highest reading reached (e.g., 200 ppm). The surface scans are done quarterly. The technician follows a serpentine pattern.

The design capacity of the landfill is 30 M cubic yards and they are over 50 Mg/year. They were able to stay under 50 Mg/year for two years but then installed the flare in February 2008. Mr. Dennison said that the landfill is not a major source for any pollutant including HAPs. In 2003, the facility submitted its design plan and in 2008 it submitted its amended design plan.

The landfill accepts asbestos but not too often. The last time was 2012. They dig a hole and bury it and record the location. They have no designated area.

There are 22 wells at the facility. Eight more are to be installed next year. Mr. Dennison showed us a colored map where green represented the final cap area and the red represented the area to be installed in the facility's 5 year gas plan. There was a black line showing the header and the dots were installed gas wells.

Mr. Dennison said that in order to reduce subsurface migration, they tune the wells. They also have the subsurface probes which they monitor once per year. They are also adding wells to increase the density. Mr. Dennison said that the radius of influence (ROI) at this landfill is not as high as at Milam because it is a dry site.

Mr. Dennison said that there is a thermocouple installed at the flare and temperature is continuously monitored and recorded every 2-8 minutes (he wasn't sure exactly how often). The flow to the flare is recorded in much the same way. Every month they download the data from the SV card.

If there is a loss of flow or temperature, the flare shuts down and the blower shuts off. If there is no vacuum, the vacuum activated valve goes off and this prevents uncontrolled venting. There is no bypass to the flare.

Mike arrived at about 10:15 am. He explained the auto start program for the flare. If the flare shuts off, the auto start program kicks in and the flare attempts to restart. If it can't restart after three tries or so, then the auto dial feature kicks in and someone at the facility is contacted. Mr. Dennison said that the landfill has a Startup, Shutdown and Malfunction Plan (SSMP). According to Mr. Dennison, there have been times when the flare has been shutdown for more than a day; however, the collection system has not been shutdown for more than 5 days.

Mike said that he conducts the surface monitoring every 50 feet about 120 points at each monitoring session. He follows a serpentine path. He showed us a copy of the monitoring plan. He does monitoring mostly at the top of the landfill. He does not do the perimeter of the collection area because it is on a 4 to 1 slope. Mr. Dennison showed me the facility's design plan where it states that steep slopes and the active area will not be monitored.

Mike said he started working at Cottonwood about a year ago and he has found no exceedances. There had been some exceedances more than a year ago but the facility didn't know the specifics. Mike said he typically measures about 200 ppm. If he were to get an exceedance, a foot of dirt would be put on the area. He said it typically takes three to three and half hours to do the surface monitoring and two to three hours to do the wells. He attaches a measuring wheel to his hand held monitor and rolls it to get a consistent distance for measuring.

## **TOUR INFORMATION**

**EPA toured the facility:** Yes

### **Data Collected and Observations:**

After the opening conference with Mr. Frate and Mr. Raynore, we got in the truck to take an overview tour of the landfill. I took a photo of the final capped area (photo 1). I took a photo of the flare from the distance (photo 2). I took a photo of one of the perimeter gas probes (photo 3). These are labelled "GP." I then took a photo of a gas well on the hill (photo 4). I saw a water truck watering the internal roads.

We stopped at the flare (photo 5). The parameters were as follows: 1387 degrees Fahrenheit and 1343 standard cubic feet per minute (scfm), and -39.93 water column (w.c.).

We then drove back the same way to go to the other side of the landfill. We saw where the facility was placing the final cap (photo 6). I took another photo of a perimeter gas probe, GP-05 (photo 7).

The site managers explained that there are also ground water wells present. The site managers explained that the rock crusher was not operating that day.

We then went back to the office and waited about an hour for Denny Dennison and Mike to arrive. Mr. Dennison arrived at about 9:45 am.

**Field Measurements:** were taken during this inspection.

Upon arrival at the facility, Ray Cullen calibrated the Flame Ionization Detector (FID), the Foxboro TVA-1000, in the parking lot. He calibrated the machine at 0 ppm, 500 ppm, 2000 ppm and 10,000 ppm. He used methane in air except for the 0 ppm calibration, he used just air.

After our discussions with Ernest Dennison and Mike, we then went out to the site again and Ray began the surface monitoring. He used our FID placing it approximately 2 to 4 inches above the surface.

- Ray started out in the same area that Mike typically starts out at, according to the diagram. He started out by measuring nine points in one area and did not find any exceedances (photo 8).
- Ray moved on to a different area and continued monitoring while Mike showed me how he measures wellhead parameters (photos 9 and 10). He measured methane, CO<sub>2</sub>, O<sub>2</sub> and balance gas (mostly N<sub>2</sub>), temperature and pressure. At this well, MW10R, the temperature was 129-130 degrees Fahrenheit and 0 percent oxygen. The parameters are automatically recorded. When the methane is too high, Mike says he adjusts or tunes the well by pulling a little to increase vacuum. There are three different pressure measurements: static pressure which is at the well and is supposed to be negative; system pressure which is at the flare and should be negative and differential pressure which should be positive and is used to calculate the flow rate.
- Next, Ray reported that he had found some exceedances. There was a greater than 500 ppm exceedance on the ground near well 14R (photo 11). There was a greater than 500 ppm exceedance at two cracks on the internal roadway. Photo 12 is a photo of this roadway area. There were odors in this area. There was discussion between EPA and the facility about how close the probe should be when monitoring cracks. Mr. Dennison said that the probe should not be in the crack.
- Next we entered the area immediately adjacent to the active area. Photo 13 is a photo of the active area. In this area, Ray found an exceedance that varied in concentration from 537 to 3000 ppm. Photo 14 shows where Ray monitored the 537 to 3000 ppm exceedance. Mr. Dennison requested his staff to place a load of dirt on the area.
- We then entered an area about 200 feet east of the active area. The area had cracks in it. Ray measured 700 ppm here. I took three photos of this location (15-17).
- Next we entered the NE section of the Phase 3 area. Ray monitored here and found three exceedances of the 500 ppm standard. There were odors. According to Mr. Dennison, they are planning on placing more wells in this area.
- Mr. Dennison said that there was heavy erosion on the northeastern slope (east slope, phase 5) that was causing odors to the south in the area where I was standing. Ray monitored this area. He found multiple exceedances in the area of heavy erosion and I took several photos.

Photo 19 was not an exceedance. Photo 20-24 were photos of either exceedances or the erosion. Mr. Dennison said that more wells are planned to be installed in this area in the third and fourth quarter. In the meantime, he asked that dirt be sent up to cover the area.

- After dirt was laid down where the exceedances were detected in the NE phase 3 area, Mr. Dennison requested that we re-monitor it. He said that this is the procedure they follow if they find an exceedance: they cover with dirt and re-monitor. So Ray re-monitored this area and there were no exceedances. We did not have a GPS but Mike told me that the location on the gps was latitude: -38.257 and longitude: -89.777.
- I noticed at this time that a truck going by on the roadway was generating a lot of dust (photos 25-27). Mr. Dennison said that the water truck goes around all day on dry days. However, they had to pull the guy off of watering to bring the dirt up. They were also filling up the truck and it was lunch time.
- We then got in the car and drove to the final capped area that was very grassy. This area was next to the office (Phase 1N). Ray did not find exceedances in this area (photos 28-29).

### **RECORDS REVIEW**

- We reviewed monitoring data on Ernest Dennison's laptop. He found that on June 23, 2009, during the second quarter monitoring event, they found an exceedance of 5300 ppm and put a foot of dirt on it. Then he randomly checked another time, March 2010, first quarter 2010, and there were no exceedances. When they do find an exceedance, they record the coordinates.
- We did not leave the facility with any documents.

### **CLOSING CONFERENCE**

**Requested documents:** At the end of the inspection, I told Mr. Dennison that I would send him an email with the information I would like him to send me. On August 7, 2014, I sent an electronic mail message to Denny Dennison requesting the below listed information and on August 7, 2014, Denny Dennison submitted the requested information which is available electronically on my computer hard drive, under My Documents. With respect to the exceedances found during the inspection, Mr. Dennison said that follow up scans were done on July 30, 2014 showing no exceedances and that 20-day and 30-day follow up scans would be done.

- Follow up status of the areas where there were monitored exceedances during the inspection;
- Internal surface scan monitoring records since January 2010;
- Current surface monitoring plan;
- Map of landfill showing the different areas; and
- Reports required by 40 C.F.R. § 60.757(f) for the past three years.

On September 30, 2014, I requested via electronic mail the following below listed information from Mr. Dennison. Mr. Dennison sent this information to me via electronic mail on September 30, 2014. These reports are available electronically on my computer hard drive, under My Documents.

- Startup, Shutdown and Malfunction Plans (SSMP) in place since January 2011;
- SSM plan semi-annual reports since January 1, 2008; and

- Latest performance test on the flare.

**SIGNATURES**

Lead Inspector:

Date:

3/15/16

Section Chief:

Date:

3/16/16

**Facility Name:** Cottonwood Hills Recycling and Disposal Facility  
**Facility Location:** 10400 Hillstown Road, Marissa, Illinois 62257  
**Date of Inspection:** July 29, 2014

**APPENDICES AND ATTACHMENTS**

- Media Appendix



**Facility Name:** Cottonwood Hills Recycling and Disposal Facility  
**Facility Location:** 10400 Hillstown Road  
**Date of Inspection:** July 29, 2014

### **MEDIA APPENDIX**

Below is a list and description of photos taken during the inspection along with an attached CD. All photos were taken on July 29, 2014 by Linda H. Rosen. All photos are on the g: share drive under Air Enforcement and Compliance Assurance Branch, IL/IN, LRosen.

<u>Photo Number</u>	<u>Description</u>
1-DCN0573	Final capped area
2-DCN0574	Flare from distance
3-DCN0575	Perimeter gas probe
4-DCN0576	Gas well on hill
5-DCN0577	Flare
6-DCN0578	Facility placing final
7-DCN0579	Perimeter gas probe
8-DCN0580	Area with no exceedances
9-DCN0581	Well MW10R
10-DCN0582	Well MW10R
11-DCN0583	Exceedance near well 14R
12-DCN0584	Exceedances and odors on roadway
13-DCN0585	Active area
14-DCN0586	Exceedance adjacent to active area, 537 to 3000 ppm
15-DCN0587	700 ppm exceedance 200 feet east of active area
16-DCN0588	700 ppm exceedance 200 feet east of active area
17-DCN0589	700 ppm exceedances 200 feet east of active area
18-DCN0590	Eroded area
19-DCN0591	Eroded area
20-DCN0592	Eroded area
21-DCN0593	Eroded area
22-DCN0594	Eroded area
23-DCN0595	Eroded area
24-DCN0596	Eroded area
25-DCN0597	Roadway dust
26-DCN0598	Roadway dust
27-DCN0599	Roadway dust
28-DCN0600	Final capped area
29-DCN0601	Final capped area